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NEW JOB CLASS DEFINITIONS

The promised revisions to the job class structure were introduced on 1 February 1976. The new table is presented here for those users who have not seen it posted in the Center.

JOB CLASS DEFINITIONS

CLASS	REGION	TIME	TAPES PER JOB
Q	QUICKRUN		none
A	180K	20s	none
B	180K	2m	≤2
C	250K	5m	≤2
D	250K	5m	>2
E	350K	5m	≤2
F	400K	30m	none
J	>400K	>30m	none
K	>400K	>30m	any

The primary objective was to keep the definitions as simple as possible, involving a minimum of resource parameters which would all be readily understandable to users. For this reason, SYSOUT and SYSDA space requirements--generally difficult to estimate--were eliminated as criteria.

Main changes are

a. fewer classes,

b. relaxation of region size and CPU time parameters,

c. print priority now completely independent of execution priority and based on the actual number of lines generated by the job, and

d. execution priority of jobs in the same class is on a first-come, first-served basis. The elaborate 'points' system has been dropped.

Although considerable thought went into the definition of this table, it is not the last word. We fully expect to revise it in the light of operational experience and users' feedback. We shall appreciate your comments and suggestions for improvements.

Below we show some turnaround statistics for February, the first month of operation under the new job class definitions.

SOME TURNAROUND STATISTICS FOR FEBRUARY, 1976

1. TURNAROUND TIME (Mins) BY REGION SIZE

REGION (Bytes)	No. Jobs	% Total	TURNAROUND TIME (Mins) Avg.	Med.	25%	50%	75%	95%
0 - 100K	16618	74.6	50	6	5	6	13	116
- 150	3172	14.2	89	12	5	12	42	286
- 250	1850	8.3	173	39	9	39	122	840
- 350	463	2.1	191	41	9	41	228	824
- 450	94	.4	955	489	315	489	758	1440
- 550	67	.3	614	563	151	563	879	1440
>550	16	.1	402	242	49	242	806	1072

2. TURNAROUND TIME (Mins) BY JOB CLASS

Class	Q	A	B	C	D	E	F	G *	J	K	O *	M *	TOTAL ALL-Q **	
NUMBER OF JOBS	6259	8451	3811	2249	16	433	452	12	130	105	246	324	22810	16551
% TOTAL JOBS	27.4	37.0	16.7	9.8	0.1	1.9	2.0	0.1	0.6	0.5	1.1	1.4		72.6
TURNAROUND (mins)														
AVG	6	38	76	115	798	141	258	7	511	705	635	812	57	76
MEDIAN	6	6	19	27	128	22	130	7	519	758	382	448	7	10
25% level	5	3	7	9	2	7	41	4	245	124	91	97	5	4
50%	6	6	19	27	128	22	130	7	519	758	382	448	7	10
75%	6	13	54	88	1000	153	364	10	796	929	924	918	22	40
95%	10	62	148	256	1440	501	743	17	879	1347	1440	1440	278	474

* Jobs are reset into these classes by operators.
** Includes 322 non-QUICKRUN jobs which were not classified.

EDITION 5 OF IMSL INSTALLED

The latest edition of the International Mathematical and Statistical Library has been installed at NPS. Switchover in usage from Edition 4 to Edition 5 will take place on 26 March 1976. "Edition 5--Highlights" from the IMSL Newsletter are quoted below.

Differential Equations; Quadrature; Differentiation

The cubic spline derivative evaluator and quadrature subroutines were re-written and renamed. The revisions were made to allow processing of splines produced by any one of five Chapter I subroutines. The quadrature subroutine was generalized so that limits of integration need not correspond to function end-points.

Eigenanalysis

An easy-to-use eigenvalue/eigenvector routine for the generalized real problem $Ax = \lambda Bx$ was added.

Generation and Testing of Random Numbers

All IMSL codes which utilized a uniform random number generator now call on the generator GGUB, which entered the Library at Edition 4 time. Users should be led to call GGUB, or any existing assembly language counterparts, such as GGU3.

Interpolation; Approximation; Smoothing

Major revisions were made to the cubic spline subroutines to provide a standard interface. The SOR iterative method, which was subject to convergence failure, has been replaced by a direct method.

Linear Algebraic Equations

Improvements have been made to the linear equation solver (space economizer) for indefinite symmetric matrices, and a new high accuracy code for this class of matrices has been added.

Observation Structure

Eleven new subroutines have been added to the multivariate statistics chapter (Chapter O). All of them are in the factor analysis area and provide a rather complete factor analysis capability. A principal component, common factor, or image analysis model may be chosen. Factor loadings may be estimated using unweighted least squares, generalized least squares, or maximum likelihood procedures. Options are available for rotation of the factor space to aid interpretation. Several types of orthogonal and oblique rotation may be used.

Regression Analysis

A new linear regression model selection program entered the Library at Edition 5 time. This routine is based on a "Leaps and Bounds" algorithm (see Furnival, G. M. et al., "Regressions by Leaps and Bounds," Technometrics, 16(4)-1974, 499-511) that allows consideration of all possible subset regressions without computing them all. The selection criterion may be the R-squared, adjusted R-squared, or Mallow's C_p statistic.

Zeros and Extrema; Linear Programming

The polynomial root finder, ZPOLYR, based on Laguerre's method, has been revised and renamed, ZPOLR.

A new nonlinear least squares routine that uses a finite Levenberg-Marquardt algorithm has been added. This routine uses a new scheme, developed by IMSL Advisor, Professor Kenneth Brown, for choosing the Levenberg-Marquardt parameter. It also has an option to force descent. General improvements have been made according to desires expressed by several IMSL subscribers.

A new routine to find the minimum of a function of N variables using a quasi-Newton algorithm has been added to this chapter.

USER LIBRARIES TECHNICAL NOTE

A new edition of TN 0211-05 by Sharon D. Raney was published in January. The new title is User Libraries and Source Code Editing Under OS. It contains much more information than the previous edition. Use of the UPDATE program to alter source code without loading card decks is described in detail. The new abstract is given below:

This technical note is intended to assist those who wish to use private libraries of source programs and/or precompiled programs on the OS/MVT System at NPS. Most of the material presented has been abstracted from various IBM manuals and publications of the Computer Center. By learning and using these techniques one can stop unnecessary loading of large decks, avoid re-compilation of checked-out routines, and often improve the priority category of his or her work.

SYSTEM STATUS AVAILABLE BY TELEPHONE

Information concerning the current status of the computer systems may be obtained by dialing X2713. This is provided via a recording which is updated as the need arises. Should the information prove incorrect or out of date, please bring it to the attention of the operations group by calling X2721.

USERS' MANUALS

Users who will be leaving NPS at the end of Quarter III and who are holders of User's Manuals are requested to return their copies to In-147. Recirculating these publications saves unnecessary printing costs.

CLASS PROJECT NUMBERS

Class project numbers in the 1400 series will not be valid after 26 March. Instructors who need class project numbers for next quarter may obtain them by calling X2731 or visiting In-147.

MASTER LIST OF DOCUMENTATION

The Information Services staff has recently prepared a master list of documentation for all software available for users at the Center. Each item is listed under the product name. Information provided includes the location where

reference copies are available and whether or not individual copies can be obtained. Copies of the list can be found in In-146 (Consulting Room), In-147 (Information Services Office) and In-162 (Center Library).

REVISED SPSS TECH NOTE

A new edition of TN 0211-19, "Directions for Using SPSS (Statistical Package for the Social Sciences)", was issued by the Center recently. All details for use at NPS not covered in the SPSS Manual are included in this note. Individual copies are available in In-146.

RECENT ADDITIONS TO THE LIBRARY (IN-162)

Books

Author	Title
Aho, et al.	Design and Analysis of Computer Algorithms
Wolfe, J. N.	Economics of Technical Information Systems
Gordon, G.	Application of GPSS V to Discrete System Simulation
Moore, R. E.	Mathematical Elements of Scientific Computing
Nijenhuis & Wilf	Combinatorial Algorithms
Wenninger, M. J.	Polyhedron Models
Gourlay & Watson	Computational Methods for Matrix Eigenproblems
Woodcock & Poston	A Geometrical Study of the Elementary Catastrophes, Lecture Notes in Mathematics - No. 373

Reports

Number	Title	Author/Organization
1210	Programming Language Design	Grooms, D. W.

National Technical Information Service (NTIS)

AD	A-008937	Understanding Data Strutures	R. Gerritsen, C-M U (Feb. 1975)
	A-014930	Computer System Models	S. R. Kimbleton, U of M (May 1975)

Proceedings

Organization	Title
ACM	SIGCUE/SIGCSE: Computer Science & Education - Proceedings of ACM SIGCUE - SIGCUS Joint Symposium, Feb. 76
Fenichel, C. (ed.)	Changing Patterns in Information Retrieval - Tenth Annual National Information Retrieval Colloquium. May 3-4, 1973, Philadelphia, Pennsylvania
ACM-IEEE	The 3rd Annual Symposium on Computer Architecture
ACM	SIGMINI/SIGPLAN: Programming Systems in the Small Processor Environment - Proceedings of the ACM SIGMINI SIGPLAN Interface Meeting, March 4-6, 1976, New Orleans, Louisiana
American Mathematical Society	The Influence of Computing on Mathematical Research and Education - Proceedings of Symposia in Applied Mathematics (Volume 20), 1974

The Newsletter is written by members of the staff, W. R. Church Computer Center (Code 0211), Naval Postgraduate School, Monterey, California 93940. Requests for further information or suggestions on articles for the Newsletter may be addressed to the User Services Manager, Code 0211, (In-133). Telephone: X2752 (or 2573 and leave message).

The Center provides batch processing service under IBM 360/Operating System (OS/MVT) and time-sharing service under CP-67/CMS. These Services are based on a dual-processor IBM 360 Model 67 system with 2.0 megabytes of core storage.

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